Course Syllabus

PSYCH 5112: CONCEPTS IN BEHAVIORAL GENETICS
QTL METHODOLOGY COURSE
Spring 2004

Instructor: Dr. Michael Stallings
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Course Objectives

The focus of this course will be on the development of models for mapping quantitative trait loci (QTL) in experimental populations and in human family studies. The course will be introductory, but previous completion of quantitative genetics and biometrical methods is recommended. There will be an emphasis on the derivation of model expectations and their application to empirical data using available software.

Course Materials

The primary textbook for the course will be *Statistics in Human Genetics* (1998) by Pak Sham. However, there will be also be weekly supplemental readings assigned.

Additional supplemental texts include:

Ott, J. (1999). *Analysis of Human Genetic Linkage (3rd Edition). Baltimore, MD: The Johns Hopkins Press.*

Terwilliger, J. D. and Ott, J. (1994). *Handbook of Human Genetic Linkage. Baltimore, MD: The Johns Hopkins Press.*

Assessment and Evaluation

Course objectives will be evaluated through approximately weekly homework exercises and a written project. The written project will be the write up of a results section of an analysis utilizing methods covered in the course. You may use your own data (ideally), or you can see me for sample data. The results write-up will be limited to 5 pages (double-spaced), with a 1-page introduction briefly summarizing the motivation for the investigation. You will also be limited to a maximum of 5 figures and 5 tables in summarizing your findings.

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(Class Meetings: Wednesdays, 9:00a - 11:30a)

DATE   **TOPIC**

01/14   Course Introduction and Introduction to Biometrical Genetics

01/21   Introduction to Biometrical Genetics II

01/28   QTL Mapping With F2s

02/04   QTL Mapping With F2s and RIs

02/11   Introduction to Parametric Linkage Analysis in Extended Pedigrees

02/18   Parametric Linkage Analysis - Part II

02/25   Genotyping and Error Checking

03/03   **METHODOLOGY WORKSHOP: No Class**

03/10   IBD and Genetic Covariance

03/17   Nonparametric Linkage Methods

03/24   **Spring Break! No Classes !**

03/31   QTL Mapping Using Mx

04/07   QTL Mapping in Selected Samples

04/14   Association Studies I

04/21   Association Studies II

04/28   Combined Linkage and Association Analysis